APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/575,605	05/22/2000	Kornelis Antoine Schouhamer Immink	PHN-17.459	1475

24737	7590	03/10/2004	**EXAMINER**	
			KUMAR, PANKAJ	

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ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>22 May 2000</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-15</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1,2,4-7,9-12,14 and 15</u> is/are rejected.
7) ☒ Claim(s) <u>3,8 and 13</u> is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>5</u>.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1.   DETAILED ACTION

2.   *Claim Rejections - 35 USC § 102*

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

4.   A person shall be entitled to a patent unless –

5.   (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed
in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by
another filed in the United States before the invention by the applicant for patent, except that an international application
filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed
in the United States only if the international application designated the United States and was published under Article
21(2) of such treaty in the English language.

6.   Claims 1, 2, 4-7, 9-12, 14-15 are rejected under 35 U.S.C. 102(e) as being anticipated by

Bauml et al. USPN 6125103.

7.   As per claim 1, Bauml teaches a transmission system for transmitting datawords via a

multicarrier signal (11) from a transmitter (10) to a receiver (12), the transmitter (10) comprising

a generator (20) for generating for each dataword (Bauml fig. 1: NR) (19) a number of

alternative sequences (Bauml fig. 1: output of mixers; au(1)...a(u)U) (21), and the transmitter

(10) further comprising a selector (Bauml fig. 1: SM) (22) for selecting the alternative sequence

with the lowest peak power value (23) for transmission to the receiver (12) (Bauml col. 5 lines

41-57, col. 6 lines 26-37), characterized in that the generator (20) is embodied so as to combine

mutually different digital words (Bauml fig. 1: p(1)...p(U)) with the dataword (Bauml fig. 1:

combining p(1)...p(U) with serial/parallel conversions of NR) (19) in order to form the

alternative sequences (21) (Bauml fig. 1, 3: au(1)...a(u)U; since multiple au's will be output over

time, there are multiple sequences).

8.   As per claim 2, Bauml teaches a transmission system according to Claim 1, characterized

in that the generator (20) comprises an augmentor (40) for generating for each dataword (Bauml

fig. 1: serial/parallel conversions of NR) (19) a number of intermediate sequences (Bauml fig. 1:

output of mixers) (41) by combining the digital words (Bauml fig. 1: p(1)...p(U)) with the

dataword (Bauml fig. 1: serial/parallel conversions of NR) (19), the generator (20) further

comprising a scrambler (Bauml fig. 1: IDFT, differential modulation DM) (42) for scrambling

the intermediate sequences (41) in order to form the alternative sequences (Bauml fig. 1:

au(1)...a(u)U) (21).

9.   As per claim 4, Bauml teaches a transmission system according to Claim 1, characterized

in that the generator (20) comprises a splitter (60) for splitting the dataword (19) and the digital

words into fragments (Bauml fig. 1: serial NR split into multiple parallel fragments) (61), the

generator (20) further comprising a combiner (62) for combining the fragments (61) in order to

form the alternative sequences (21) (Bauml fig. 3: adder combining au(1) to au(V) after mixing

with b1 to bV, respectively; since multiple au's will be output over time, there are multiple

sequences).

10.   As per claim 5, Bauml teaches a transmission system according to claim 1 characterized

in that the selector (22) comprises an Inverse Discrete Fourier Transformer (50) for calculating

for each alternative sequence (Bauml fig. 1: output of mixers) the Inverse Discrete Fourier

Transform (IDFT) (Bauml fig. 1: IDFT), the selector (22) further comprising means (52) for

determining for each alternative sequence the maximum of the calculated IDFT values (Bauml

cols. 5-6 equations 1-3: max function) (51), the selector (22) also comprising means (54) for

selecting the alternative sequence with the lowest maximum (23) for transmission to the receiver

(Bauml cols. 5-6 equations 1-3: argmin of max) (12).

11.   As per claim 6, Bauml teaches a transmitter (10) for transmitting datawords via a

multicarrier signal (11) to a receiver (12), the transmitter (10) comprising a generator (20) for

generating for each dataword (19) a number of alternative sequences (21), and the transmitter

(10) further comprising a selector (22) for selecting the alternative sequence with the lowest peak

power value (23) for transmission to the receiver (12), characterized in that the generator (20) is

embodied so as to combine mutually different digital words with the dataword (19) in order to

form the alternative sequences (21) (discussed above using Bauml respect to other claims).

12.   As per claim 7, Bauml teaches a transmitter according to Claim 6, characterized in that

the generator (20) comprises an augmentor (40) for generating for each dataword (19) a number

of intermediate sequences (41) by combining the digital words with the dataword (19), the

generator (20) further comprising a scrambler (42) for scrambling the intermediate sequences

(41) in order to form the alternative sequences (21) (discussed above using Bauml respect to

other claims).

13.   As per claim 9, Bauml teaches a transmitter according to Claim 6, characterized in that

the generator (20) comprises a splitter (60) for splitting the dataword (19) and the digital words

into fragments (61), the generator (20) further comprising a combiner (62) for combining the

fragments (61) in order to form the alternative sequences (21) (discussed above using Bauml respect to other claims).

14.   As per claim 10, Bauml teaches a transmitter according to claim 6, characterized in that the selector (22) comprises an Inverse Discrete Fourier Transformer (50) for calculating for each alternative sequence the Inverse Discrete Fourier Transform (IDFT), the selector (22) further comprising means (52) for determining for each alternative sequence the maximum of the calculated IDFT values (51), the selector (22) also comprising means (54) for selecting the alternative sequence with the lowest maximum (23) for transmission to the receiver (12) (discussed above using Bauml respect to other claims).

15.   As per claim 11, Bauml teaches a method of transmitting datawords via a multicarrier signal (11) from a transmitter (10) to a receiver (12) comprising the steps of:

16.   generating for each dataword (19) a number of alternative sequences (21),

17.   selecting the alternative sequence with the lowest peak power value (23) for transmission to the receiver (12), characterized in that the step of generating the alternative sequences comprises the step of:

18.   combining mutually different digital words with the dataword (19) in order to form the alternative sequences (21) (discussed above using Bauml respect to other claims).

19.   As per claim 12, Bauml teaches a method of transmitting datawords via a multicarrier

signal (11) according to Claim 11, characterized in that the step of generating the alternative

sequences comprises the steps of:

20.   generating for each dataword (19) a number of intermediate sequences (41) by combining

mutually different digital words with the dataword (19),

21.   scrambling the intermediate sequences (41) in order to form the alternative sequences

(21) (discussed above using Bauml respect to other claims).

22.   As per claim 14, Bauml teaches a method of transmitting datawords via a multicarrier

signal (11) according to Claim 11, characterized in that the step of generating the alternative

sequences comprises the steps of:

23.   splitting the dataword (19) and the digital words into fragments (61),

24.   combining the fragments (61) in order to form the alternative sequences (21) (discussed

above using Bauml respect to other claims).

25.   As per claim 15, Bauml teaches a method of transmitting datawords via a multicarrier

signal (11) according to claim 11 characterized in that the step of selecting the alternative

sequence with the lowest peak power value (23) comprises the steps of:

26.   calculating for each alternative sequence the Inverse Discrete Fourier Transform (IDFT),

27.   determining for each alternative sequence the maximum of the calculated IDFT values

(51),

28.   selecting the alternative sequence with the lowest maximum (23) for transmission to the

receiver (12) (discussed above using Bauml respect to other claims).

29.   *Allowable Subject Matter*

30.   Claims 3, 8, 13 objected to as being dependent upon a rejected base claim, but would be

allowable if rewritten in independent form including all of the limitations of the base claim and

any intervening claims. The art of record does not suggest the respective claim combinations

together and nor would the respective claim combinations be obvious with:

31.   As per claim 3, a transmission system according to Claim 2, characterized in that the

augmentor (40) is embodied so as to generate for each dataword (19) 2^r intermediate

sequences (41) by combining all possible digital words of length r with the dataword (19).

32.   As per claim 8, a transmitter according to Claim 7, characterized in that the augmentor

(40) is embodied so as to generate for each dataword (19) 2^r intermediate sequences (41) by

combining all possible digital words of length r with the dataword (19).

33.   As per claim 13, a method of transmitting datawords via a multicarrier signal (11)

according to claim 12, characterized in that for each dataword (19) 2^r intermediate

sequences (41) are generated by combining all possible digital words of length r with the

dataword (19).

34. Conclusion

35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Long 5710990

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (703) 305-0194. The examiner can normally be reached on Mon, Tues, Wed and Thurs after 8AM to after 6:30PM.

37. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (703) 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

38. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

39.   40.

41.   PK

MOHAMMAD H. GHAYOUR
PRIMARY EXAMINER